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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,201	06/12/2008	Makoto Morita	2006_0771A	1786
513 7590 12/16/2011 WENDEROTH, LIND & PONACK, L.L.P. 1030 15th Street, N.W., Suite 400 East Washington, DC 20005-1503				
EXAMINER				
NGUYEN, PHUONG T				
ART UNIT		PAPER NUMBER		
3742				
NOTIFICATION DATE		DELIVERY MODE		
12/16/2011		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ddalecki@wenderoth.com

coa@wenderoth.com

### Office Action Summary

**Application No.**

10/580,201

**Applicant(s)**

MORITA ET AL.

**Examiner**

PHUONG NGUYEN

**Art Unit**

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 August 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 5) ☒ Claim(s) 1-4 is/are pending in the application.
- 5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1-4 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 05/23/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-853)  
Paper No(s)/Mail Date \_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-3 and 5-6 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Okuyama (4,966,547), in view of Benedetti (US 6,036,485).**

Regarding claim 1, Okuyama discloses a tunnel furnace comprising a baking furnace (100, fig.1) for performing heat treatment to substrate while conveying the substrate, conveying means (30A-E), heating means (22), a heating area (10B), a keeping area (10C-D) and a cooling area (10E) in order in a traveling direction of the conveying means.

**However**, Okuyama does not disclose plural stages of conveying means for conveying the substrate, wherein the conveying means adjacent in an up and down direction are divided with heat insulating walls provided between them so as to constitute multi-stage heat treatment rooms, heating means on any one of a top face and a bottom face. Benedetti discloses plural stages (PS, figure below) of conveying means (CM, figure below) for conveying the substrate, wherein the conveying means (CM) adjacent in an up and down direction are divided with heat insulating walls (IW, figure below) provided between them so as to constitute multi-stage heat

treatment rooms, heating means (HM, figure below) on any one of a top face and a bottom face (line 66-67, col.8 and line 1-5, col.9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize in Okuyama, plural stages of conveying means for conveying the substrate, wherein the conveying means adjacent in an up and down direction are divided with heat insulating walls provided between them so as to constitute multi-stage heat treatment rooms, heating means on any one of a top face and a bottom face, as taught by Benedetti, in order to increase the productivity for the user.

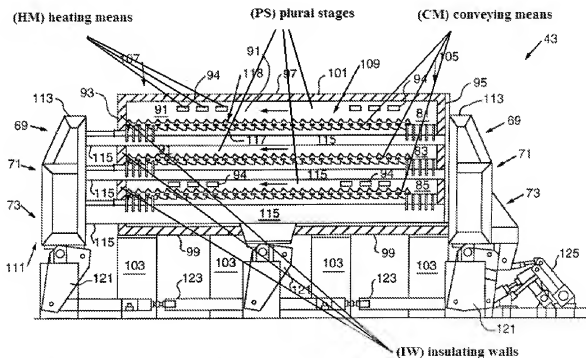


Figure - Benedetti (US 6,036,485)

Regarding claim 2, Okuyama discloses the heating means (22, fig.1) in the baking furnace (100) may be so configured as to be able to control a heating amount separately (line 38-45, col.3).

Regarding claim 3, Okuyama discloses the heating means (22) is an electric heater [line 40, col.3].

Regarding claim 5, Okuyama discloses the heating area (10B, fig.1). Benedetti discloses the heating means (HM, figure above) on both a top face and a bottom face thereof (line 66-67, col.8 and line 1-5, col.9).

Regarding claim 6, Okuyama discloses the keeping area (10C-D, fig.1). Benedetti discloses the heating means (HM, figure above) on any one of a top face and a bottom face thereof (line 66-67, col.8 and line 1-5, col.9).

**3. Claim 4 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Okuyama (4,966,547), in view of Benedetti (US 6,036,485), and further in view of Fair (US 6,204,483 B1).**

Regarding claim 4, Okuyama and Benedetti disclose substantially all the features of the claimed invention including the conveying means, **but do not disclose** a return conveyer under conveying means for conveying the substrates. Fair discloses a return conveyer (56, fig.5) under conveying means (50, 56, fig.5) for conveying the substrates. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize in Okuyama/Benedetti, a return conveyer under conveying means for conveying the substrates, as taught by Fair, in order to increase throughput, cut cost and increase efficiency.

***Response to Amendment***

4. Applicant's arguments with respect to claims 1-4, filed on 08/24/2011, have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PHUONG NGUYEN whose telephone number is (571)270-1834. The examiner can normally be reached on Monday-Thursday (8.00am-5.00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Phuong Nguyen/  
Examiner, Art Unit 3742  
/12/08/2011/

/Quang T Van/  
Primary Examiner, Art Unit 3742